

KARPUKHIN, Nikita Sergeyevich, dotsent, kandidat tekhnicheskikh nauk;
ZHDANKOV, A.P., dotsent, kandidat tekhnicheskikh nauk, retsenzent;
MURASHEV, V.I., professor, redaktor; TRAPENIN, R.I., dotsent,
kandidat tekhnicheskikh nauk, nauchnyy redaktor; KOTIK, B.A.,
redaktor izdatel'stva; GUSEVA, S.S., tekhnicheskiiy redaktor

[Reinforced concrete structures] Zhulezobetonnye konstruktsii. Izd.
2-oe, perer. Pod red. V.I. Murasheva. Moskva, Gos. izd-vo lit-ry
po stroit. i arkhitekt., 1957. 442 p. (MIRA 10:10)

1. Deyatvitel'nyy chlen Akademii stroitel'stva i arkhitektury
(for Murashev)
(Reinforced concrete construction)

KARPUKHIN, N.S., dotsent

Testing the strength of reinforced concrete. Trudy MIIT 108:269-
293 '59 (MIRA 13:3)
(Reinforced concrete--Testing)

KARPUKHIN, N.S., kand. tekhn. nauk, dotsent

Study of the endurance of concrete in connection with the
design of bridge elements according to limiting states.
Trudy MIIT no.152:5-20 '62. (MIRA 16:6)

(Concrete—Testing)

KARPUKHIN, N.S., kand. tekhn. nauk, dotsent

Study of the endurance of concrete subject to the repeated
application of tension. Trudy MIIT no.152:33-43 '62.
(MIRA 16:6)

(Concrete—Testing)

KARPUKHIN, N.S., kand. tekhn. nauk, dotsent

Study of the endurance of reinforced concrete girders subject
to a repeatedly applied load. Trudy MIIT no.152:44-53 '62.
(MIRA 16:6)

(Beams and girders—Testing)

KARPUKHIN, O. A.

7849* (Russian.) Elastic Scattering of γ Quanta
up to 180 M.E.V. by Protons. Upravoe
energiy i energiy de 180 mev protonami. B. B.
Gol'danskiy, O. A. Karpukhin, A. V. Kuznetsov
and V. Y. Gornitskiy. *Doklady Akademiya Nauk SSSR*, v. 17,
1956, p. 888-891.
Discussion of Compton effect in resonance.

With En-
rassianin
Gornitskiy
and V. Y.
Dec. 11.

See

Diffraction of Compton effect in plasma: apparatus and method
for measuring the angular distribution of elastic scattering

RMP

mjr

KARPUKHIN, O. A.

SUBJECT USSR / PHYSICS
AUTHOR GOVORKOV, B.B., GOL'DANSKIY, V.I., KARPUKHIN, O.A., KUZENKO, A.V.
TITLE The Elastic Scattering of γ -Quanta with an Energy of up to 120 MeV by Protons.
PERIODICAL Dokl. Akad. Nauk 111, fasc. 5, 988-991 (1956)
Issued: 1 / 1957

CARD 1 / 2

PA - 1939

Experiments were carried out by means of the 265 MeV-synchrotron of the Physico-Institute "P.N. LEBEDEV" of the Academy of Science in the USSR. For the purpose of reducing the photon load of individual counters work was carried out in such a manner that the duration of the impulses of the synchrotron amounted to 1000 μ sec (instead of the usual 30 μ sec). The spectrum of the electrons impinging upon the target of the synchrotron was nearly triangular with the base of 75 to 119 MeV and with the maximum at 97 MeV. The elastic γ p-scattering at these energies was investigated by registration of the scattered γ -quanta solely with the help of telescopes which consist of scintillation counters. An attached drawing illustrates this experimental order. Observation was carried out with two telescopes which were fitted simultaneously under the angles 90 and 90°, 45 and 90°, 45 and 135° (in the laboratory system). Each telescope consisted of four liquid-scintillation-counters with a solution of terphenyl in toluene. The recording threshold for the γ -quanta in the case of both telescopes amounted to ~ 40 MeV. The light pulses emitted from the scintillators were recorded by means of photoelectronic multipliers

Dokl.Akad.Nauk 111,fasc.5,988-991 (1956)

CARD 2 / 2

PA - 1939

FEU - 19 - II. Liquid hydrogen was used in a target vessel of penopolystirol. The determination of the effectively acting volume of the target is described.

Experimental results are shown in form of a graph. The cross section for the angle 90° amounts to $d\sigma/d\Omega = (1,35 \pm 0,13) \cdot 10^{-32} \text{ cm}^2/\text{sterad}$ and agrees well with the results obtained by C.OXLEY and V.THELEGI, Phys.Rev.100,435 (1955). However, in contrast to this work, the authors obtained a predominating scattering of photons into the rear hemisphere (for 45° - $d\sigma/d = (1,40 \pm 0,17) \cdot 10^{-32} \text{ cm}^2/\text{sterad}$; for 135° - $(2,25 \pm 0,45) \cdot 10^{-32} \text{ cm}^2/\text{sterad}$). This result has the following significance: Already at energies of γ quanta of up to 120 MeV the analysis of the COMPTON effect on protons, which is based only on the value of the anomalous statistical magnetic moment and results in a certain predominance of scattering in to the front hemisphere, is found to be insufficient. Apparently the interference of the scattering of γ -quanta on the proton as a punctiform source and on the nucleon-isobar becomes noticeable already at such energies, viz. because of the existence of an asymmetric nucleon cloud a dynamic magnetic moment of the nucleons occurs.

INSTITUTION: Physical Institute "P.N.LEBEDEV" of the Academy of Science in the USSR

KARPUKHIN, D. A.

"Dependence of Cross Section for Photoproduction of π^0 -Mesons on Mass Number of Nuclei," by B. B. Govorkov, V. I. Gol-dan-skiy, O. A. Karpukhin, A. V. Kutsenko, and V. V. Pavlovskaya, Doklady Akademii Nauk SSSR, Vol 112, No 1, Jan 57, pp 37-40

The article describes "more accurate" measurements of the variation of cross section for π^0 -meson production with mass number. "A particularly careful investigation was made in the region of small A."

The experimental technique is described. The 265-Mev synchrotron of the Physics Institute, Academy of Sciences USSR, was used.

A table of the cross sections relative to that for hydrogen and a graph of relative cross section vs mass number are given. (U)

SUM.1360

SOV/120-59-2-4/50

AUTHORS: Belovintsev, K.A., Karpukhin, O.A., Kutsenko, A.V.,
Shapkin, A.A., and Yablokov, B.N.

TITLE: An Apparatus for Measuring the Intensity Distribution in
an Expanded γ -Ray Pulse from a Synchrotron (Pribor dlya
izmereniya raspredeleniya intensivnosti v rastyanutom
impul'se gamma-izlucheniya sinkhrotrona)

PERIODICAL: Priboiry i tekhnika eksperimenta, 1959, Nr 2, pp 15-18
(USSR)

ABSTRACT: In most cases the 280 Mev γ -ray pulse from the FIAN
synchrotron is expanded to 2-2.5 μ sec (Ref 1). When
this is done, it is necessary to know the intensity
distribution within the γ -ray pulse. It is further
desirable to be able to determine this intensity distri-
bution continuously in order to obtain the average form
of the pulse during experiments. Such measurements can
be carried out using a multichannel time analyser working
with a suitable probe whose count is proportional to the
instantaneous intensity (e.g. a scintillation counter).
However, such equipment is expensive and bulky and its
use is not always justified. Instead, a single channel
analyser may be used for this purpose. The γ -ray pulse
passes through the "window" of the analyser which looks

Card 1/3

BOV/120-59-2-4/50

· An Apparatus for Measuring the Intensity Distribution in an Expanded γ -Ray Pulse from a Synchrotron

at a definite part of the pulse at a time and records it with an appropriate counter. The particular part of the pulse must then be related to the total intensity of the expanded pulse. The device described in the present paper can carry out this operation using a step-by-step switch. A NaI(Tl) crystal working in conjunction with a FEU-19 photomultiplier is used as the γ -ray detector. The amplitude of the pulse at the photomultiplier load is proportional to the instantaneous value of the intensity of the expanded γ -ray pulse. The output from the photomultiplier is fed into two channels. The first channel (integral) sums up all the pulses fed into it and is in fact simply a monitor, and the counts recorded by it are proportional to the integral intensity of the synchrotron. The second channel is a differential one and will pass only the part of the pulse defined by the analyser "window", and the counts recorded through this channel are proportional to the intensity at the given instant of time. The width of the "window" can be either 50 or 100 μ sec. The "window" may be moved along

Card 2/3

SOV/120-59-2-4/50

An Apparatus for Measuring the Intensity Distribution in an Expanded γ -ray Pulse from a Synchrotron

the time scale either by hand using a time delay circuit, or the whole pulse is split into n sections and the instrument automatically covers the whole time interval using a step-by-step switch. The circuits of the two channels are shown in Fig 2 and the time delay circuit is shown in Fig 3. The step-by-step switch is shown in Fig 4. The apparatus has been used in studying elastic scattering of γ quanta on protons (Ref 4), photo-production of π^0 -mesons (Ref 3) and electron distributions associated with radial-phase oscillations.

Card 3/3 There are 4 figures and 4 Soviet references.

ASSOCIATION: Fizicheskii Institut AN SSSR (Physical Institute of the Academy of Sciences of the USSR)

SUBMITTED: March 31, 1958

Karpukhin, O.A.

61979

S/120/60/000/03/004/055

E032/E514

24.6810

AUTHORS: Gol'danskiy, V.I., Karpukhin, O.A. and Pavlovskaya, V.V.

TITLE: Determination of the Energy Dependence of the Efficiency of Recording of High-Energy Gamma Rays

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 3, pp 23-26

ABSTRACT: A new method is described for determining the energy dependence of the efficiency of recording of high-energy gamma rays (35-50 MeV) using a coincidence telescope. The method is based on measurements of Compton scattered gamma rays. The Compton cross-section is well-known and is given by the Klein-Nishina formula. At small angles the scattered gamma rays have a relatively large energy. Thus, for example, at a scattering angle of $\theta = 3^\circ$ and incident gamma ray energy of 250 MeV, the energy of the scattered gamma ray is about 150 MeV. Thus by placing a gamma ray telescope at an angle of 3° to the beam axis, and by varying the maximum energy of the bremsstrahlung from a synchrotron, one can examine a wide energy range.

Card 1/2

The experiment was carried out in the gamma-beam of the

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E032/E514

Determination of the Energy Dependence of the Efficiency of
Recording of High-Energy Gamma Rays

265 MeV synchrotron at the Physics Institute, Ac.Sc., USSR. The experimental arrangement is shown in Fig 1. The gamma ray beam from the synchrotron target was collimated by a lead collimator, its maximum energy being set to 250, 200, 150, 115, 80 and 60 MeV. The gamma rays scattered at angles less than 3° were detected by the four-counter telescope shown in Fig 2. The efficiency of recording of gamma rays between 35 MeV and 150 MeV was measured as a function of energy, and the result obtained is shown in Fig 5. Acknowledgment is made to A.V.Kutsenko, A.Samiullin, S.P. Balat'yev and Ye. M. Petrov for help during the measurements.

There are 5 figures and 7 English references.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute,
Ac.Sc., USSR)

SUBMITTED: May 25, 1959
Card 2/2

44

85676

S/056/60/038/006/018/049/XX
B006/B070

24.6900 (1138, 1191, 1559)

AUTHORS: Gol'danskiy, V. I., Karpukhin, O. A., Kutsenko, A. V.,
Pavlovskaya, V. V.

TITLE: Elastic γp Scattering at Energies of 40 - 70 Mev and
the Polarizability of the Proton

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,
1960, Vol. 38, No. 6, pp. 1695 - 1707

TEXT; The present paper gives a detailed description of the results of scattering experiments, of the determination of the differential elastic γp scattering cross sections, and of a comparison of the results with theory. The object of the experiments was to obtain more exact data giving a definite information on the polarizability of the proton. The experiments were carried out on the 265-Mv synchrotron of FIAN in the gamma energy range of 40 - 70 Mev (maximum bremsstrahlung energy, 75 Mev), and so essentially lower than the π^0 production threshold. The experimental arrangement is schematically shown in Fig. 1. The

Card 1/7

85676

Elastic γ p Scattering at Energies of
40 - 70 Mev and the Polarizability
of the Proton

S/056/60/038/006/018/049/XX
B006/B070

target was a cylindrical vessel (3.5 l) filled with liquid hydrogen. Two telescopes consisting of four scintillation counters with a lead converter behind the first and an aluminum filter in front of the last served as high-threshold (~ 35 Mev) gamma detectors. Each counter was connected with an Φ Y-33 (FEU-33). The block diagram of the electronic apparatus is shown in Fig. 2. A thin-walled ionization chamber placed in front of the first collimator served as an intermediate monitor. The duration of the electron pulses of the synchrotron was up to ~ 300 μ sec. The detecting telescopes were placed at angles of 45, 75, 90, 120, 135, and 150° with respect to the bremsstrahlung beam. The experimental conditions and the apparatus are thoroughly described in the paper. One section is devoted to the description of the telescope efficiency, and one to the evaluation of the experimental results. A table gives the measured values of $d\sigma/d\Omega$, the necessary corrections, and the final values. The determination of the corrections for the background and for the absorption in the target, and the determination of the systematic errors are discussed in the text.

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Card 2/7

85676

Elastic γp Scattering at Energies of
40 - 70 Mev and the Polarizability
of the Proton

3/056/60/038/006/018/049/XX
8006/B070

The data obtained are compared with the theoretical results which were obtained by taking into account the anomalous magnetic moment of the proton and the effects of mesonic cloud polarization (see Fig. 5). From $d\sigma/d\Omega(90^\circ) = (1.10 \pm 0.05) \cdot 10^{-32} \text{ cm}^2 \text{ steradian}$, the proton polarizability (electric) was found to be: $\alpha_E = (11 \pm 4) \cdot 10^{-43} \text{ cm}^3$. If dispersion

relations are used in addition to the experimental results, it is possible to calculate, from the pion photoproduction data, the sum of electric and magnetic polarizability: $\alpha_E + \alpha_M = 11 \cdot 10^{-43} \text{ cm}^3$ (Fig. 6). Then, taking into account also the errors, one finds

$\alpha_E = (9 \pm 2) \cdot 10^{-43} \text{ cm}^3$ and $\alpha_M = (2 \pm 2) \cdot 10^{-43} \text{ cm}^3$. The results are finally discussed and compared with results of other authors. In particular, the results of neutron polarizability obtained by various authors are discussed and intercompared. From the value $\alpha_E = 9 \cdot 10^{-43} \text{ cm}^3$ obtained for protons, the root-mean-square fluctuation of the proton electric dipole length is found to be $(\bar{r}^2)^{1/2} = 3.5 - 5 \cdot 10^{-14} \text{ cm}$.

Card 3/7

85676

Elastic γ p Scattering at Energies of
40 - 70 Mev and the Polarizability
of the Proton

3/056/60/038/006/018/049/XX
3006/B070

S. P. Balat'yev, R. G. Vasil'kov, Ye. V. Minarik, and A. Samiullin are
thanked for assistance, G. Ivanov for help in the evaluation of measure-
ments; and A. M. Baldin and V. N. Gribov for discussions. Yu. A.
Aleksandrov and V. A. Petrun'kin are mentioned. There are 6 figures,
1 table, and 30 references: 10 Soviet, 18 US, and 2 Dutch.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Institute of Physics imeni P. N. Lebedev of the Academy
of Sciences USSR)

SUBMITTED: January 12, 1960

Card 4/7

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S/056/60/038/006/018/049/XX
B006/B070

45	$4,88 \pm 0,28$	-148	$3,40 \pm 0,28$
75	$1,21 \pm 0,08$	-12,6	$1,12 \pm 0,08$
90	$1,14 \pm 0,05$	-7,7	$1,10 \pm 0,05$
120	$1,30 \pm 0,08$	-1,6	$1,34 \pm 0,08$
135	$1,48 \pm 0,08$	-1,0	$1,56 \pm 0,08$
150	$1,82 \pm 0,07$	-0,4	$1,93 \pm 0,07$

Fig. 1

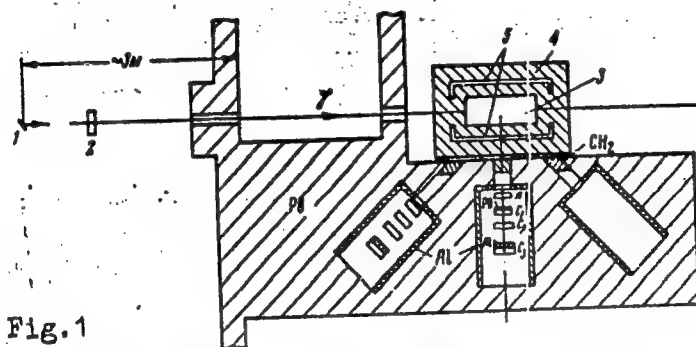


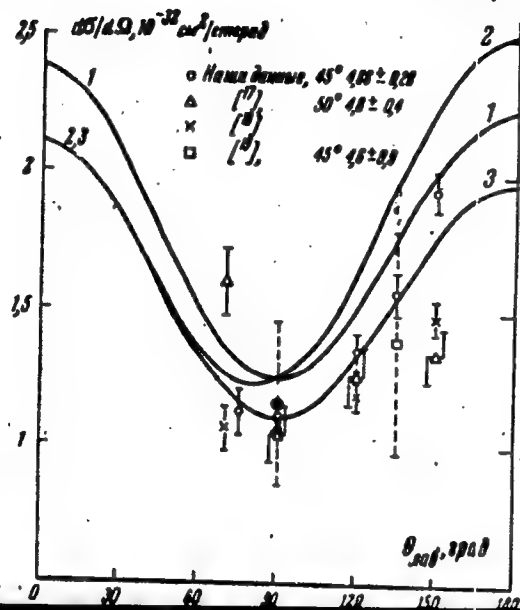
Fig. 1

Card 5/7

85676

S/056/60/038/006/018/049/XX
B006/B070

Fig. 5



Card 6/7 Fig. 5

85676

S/056/60/038/006/018/049/XX
3006/B070

Legend to Fig. 1: 1 - synchrotron target; 2 - monitor; 3 - liquid hydrogen target; 4 - polystyrene walls; 5 - liquid N₂; C₁, C₂, C₃ scintillation counters in coincidence; A - anti-coincidence counter.

Headings of the four columns of the table: angle θ [degrees];

$10^{32} \cdot d\sigma/d\Omega \text{ cm}^2/\text{steradian}$ (without corrections); total corrections;

$10^{32} \cdot d\sigma/d\Omega \text{ cm}^3/\text{steradian}$ (final values). Legend to Fig. 5: Comparison of the experimental results in this paper (o) in the laboratory system with other experimental results and with theoretical curves.

X

Card 7/7

S/056/60/039/005/046/051
B006/B077

AUTHORS: Gol'danskiy, V. I., Karpukhin, O. A., Petrov, G. G.
TITLE: Observation of the Positronium Reaction in Aqueous
Solutions
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,
Vol. 39, No. 5(11), pp. 1477 - 1478

TEXT: The present "Letter to the Editor" brings a contribution to the problem of the positron annihilation in aqueous solutions and the influence of different additions on these. The purpose of the tests whose results are compiled in a table was to prove that the different additions act mainly kinetically on the positronium annihilation in aqueous solutions and also to show a comparison of these effects with the oxidation-reduction characteristics and magnetic characteristics of different ions. The authors investigated the rate of γ -annihilation of positrons from an Na^{22} source (0.1 mCi) in aqueous solutions. The table shows the data with respect to the γ -annihilation rate compared to pure water under the

Card 1/4

Observation of the Positronium Reaction in Aqueous Solutions S/056/60/039/005/046/051
B006/B077

influence of different additions (mainly different cations in the presence of positronium - inert Cl^- anions). A general tendency to a decrease of the $\text{C}_{3\gamma}$ counting rate is found if stronger oxydizers are used but strong deviations can be found too. The deviations may frequently be caused through a $^3\text{S}_0 \rightarrow ^1\text{S}_0$ conversion at unpaired electrons of paramagnetic ions, but there is no specific connection between the magnetic properties of the ions and the quantity $\text{C}_{3\gamma}$. A strong decrease of the $\text{C}_{3\gamma}$ counting rate was found also by other authors, if NO_3^- ions were added and also that MnO_4^- ions acted stronger yet. The following data characterize the concentration dependence of $\text{C}_{3\gamma}$ for MnO_4^- additions as compared to neutral solutions:

Card 2/4

Observation of the Positronium Reaction in
Aqueous Solutions

S/056/60/039/005/046/051
B006/B077

Concentration MnO_4^- in mole/l	saturated solution	0.1	0.01	0.001	0(water)
$C_{3\gamma} \text{ min}^{-1}$	3.6 ± 0.42	5.08 ± 0.45	5.08 ± 0.12	5.50 ± 0.30	6.04 ± 0.09

The authors thank Academician A. N. Frumkin for discussions of the re-
sults obtained. There are 1 table and 4 non-Soviet references.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Physics Institute imeni P. N. Lebedev of the Academy of
Sciences USSR). Institut khimicheskoy fiziki Akademii
nauk SSSR (Institute of Chemical Physics of the Academy of
Sciences USSR)

SUBMITTED: August 2, 1960

Card 3/4

Вещество 1	Концентрация, моль/л 2	Стандартный окислительно-восстановительный потенциал для указанной в скобках пары окислитель-восстановитель 3	Число неподеленных электронов 4	Разница в C_{γ} (мин-1) по отношению к воде 5
KOH	1	+2,92 (K ⁺ /K)		-0,02±0,31
BaCl ₂	2	+2,92 (Ba ⁺⁺ /Ba)		-0,55±0,39
NaCl	2	+2,71 (Na ⁺ /Na)		+0,07±0,25
MnCl ₂	2	+1,10 (Mn ⁺⁺ /Mn)	5	-0,57±0,26
ZnCl ₂	2	+0,76 (Zn ⁺⁺ /Zn)		+0,24±0,34
FeCl ₂	0,1	+0,44 (Fe ⁺⁺ /Fe)	4	-0,99±0,27
CrCl ₃	2	+0,41 (Cr ⁺⁺⁺ /Cr ⁺⁺)	3	-1,70±0,28
TiNO ₃	6 насыщение	+0,34 (Ti ⁺ /Ti)		-1,24±0,29
CoCl ₂	2	+0,27 (Co ⁺⁺ /Co)	3	-1,17±0,40
NiSO ₄	2	+0,23 (Ni ⁺⁺ /Ni)	2	-1,03±0,36
CuCl ₂	2	-0,34 (Cu ⁺⁺ /Cu)	1	-1,85±0,31
FeCl ₃	2	-0,77 (Fe ⁺⁺⁺ /Fe ⁺⁺)	5	-2,62±0,33
FeCl ₃	0,1	-0,77 (Fe ⁺⁺⁺ /Fe ⁺⁺)	5	-1,41±0,28
KMnO ₄	6 насыщение	-1,63 (MnO ₄ ⁻ + 3e/MnO ₂)		-2,44±0,42
H ₂ O ₂	30 вес. % 7	-1,78 (H ₂ O ₂ + 2e/H ₂ O)		-1,55±0,28

Table

Card 4/4

S/056/60/039/005/046/051
B006/B077

Legend to the Table:

1) Substance; 2) Concentration in mole/l; 3) Standard redox potential for the oxidizer-reducer pairs given; 4) Number of unpaired electrons; 5) Difference of C_{γ} as compared to water; 6) Saturation; 7) % by weight.

5(4)

AUTHORS:

Vasil'yev, R. F., Karpukhin, O. N., SOV/20-124-6-21/55
Shlyapintokh, V. Ya., Emanuel', N. M., Corresponding Member,
AS USSR

TITLE:

Gas Initiation by Ozone in the Reaction of the Oxidation of
Isodecane and the Chemiluminescence Connected With It
(Gazovoye initsirovaniye ozonom v reaktsii okisleniya izo-
dekana i svyazannaya s nim khemilyuminestsentsiya)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 6, pp 1258-1260
(USSR)

ABSTRACT:

The present paper deals with the stage of initiation by ozone
in segregated form, i.e. the authors investigate such phenom-
ena and processes as occur during the short action of the
initiator. Isodecane (2,7-dimethyl-octane) was used as test
object. Preliminary tests showed that if ozone is blown past
during a short time the reaction is accelerated considerably.
The authors recorded a weak glow which was produced during
the bubbling of oxygen (containing 2-3 % ozone) by isodecane.
This isodecane was in a glass oxidation cell at temperatures
of 20-90°. By glow the photomultiplier FEU-19 served as an
indicator of the glow. The photoelectric current was recorded

Card 1/3

Gas Initiation by Ozone in the Reaction of the
Oxidation of Isodecane and the Chemiluminescence Connected With It

SOV/20-124-6-21/55

by means of the electronic potentiometer EPPV-51. The first diagram shows the intensity of glow as a function of time during the uninterrupted blowing-through of ozone and isodecane at a temperature of 55°. Intensity increases gradually and, after 2.5 hours, it attains a maximum after which it gradually decreases. As soon as the adding of ozone is interrupted, the glow immediately vanishes in all stages of the reaction. If ozone is again supplied, the previous intensity is quickly restored. According to these results the glow is caused in the interaction between ozone and a compound, which was formed already before this interaction as the result of a reaction of ozone with carbon. The above mentioned intensity maximum indicates that the concentration of this hypothetical compound passes through a maximum. In this case the kinetics of the accumulation of this compound agrees with the kinetics of the accumulation of the intermediate product in the case of successive chemical reaction. An other possibility of explaining the phenomena discussed is rejected on the grounds of being unsuited. A further proof of the intermediate character of the product of primary interaction

Card 2/3

Gas Initiation by Ozone in the Reaction of the SOV/20-124-6-21/55
Oxidation of Isodecane and the Chemiluminescence Connected With It

with ozone was supplied by experiments carried out with higher temperatures. Thus, the interaction between ozone and normal hydrocarbons at moderate temperatures is a complicated process in the course of which a relatively stable intermediate compound is formed. There are 3 figures and 4 Soviet references.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physical Chemistry of the Academy of Sciences, USSR)

SUBMITTED: October 29, 1958

Card 3/3

5(4)

AUTHORS: Vasil'yev, R. F., Karpukhin, O. N., SOV/20-125-1-28/67
Shteynberg, V. Ya.

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000720910008-4

TITLE: Chemiluminescence in Reactions of Thermal Decomposition
(Khemilyuminestsentsiya v reaktsiyakh termicheskogo raspada)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 106-109
(USSR)

ABSTRACT: The present paper describes the results obtained from experiments, in which a very weak luminescence was detected. The luminescence in question occurs with the decomposition of some organic compounds in hydrocarbons as solvents. A figure illustrates the scheme of the apparatus used for recording the luminescence. The reaction takes place in a cuvette placed in a transparent chamber. The cuvette is enclosed by a water-heated outer glass wall which acts as a thermostat. The image of the cuvette is then projected onto the photocathode of the photomultiplier FEU-19, and the current supplied by the latter is recorded by an electronic potentiometer EPPV-51. The authors investigated the thermal decomposition of the hydrogen peroxides of Tetralin; 2,7-dimethyloctane; isopropylbenzene; benzoyl peroxide and isoazobutyronitryl. Chlorobenzene was used as a

Card 1/3

SOV/20-125-1-28/67

Chemiluminescence in Reactions of Thermal Decomposition

solvent in all reactions. A table specifies the conditions under which the reaction was investigated. According to the experimental results, the intensity of luminescence increases with rising temperature. In the case of the hydrogen peroxides of 2,7-dimethyl octane and of tetralin as well as of benzoyl peroxide, the law $I \sim \exp(-A/RT)$ holds with good accuracy for the intensity of luminescence. For these substances the temperature coefficients amount to 29.3 ± 1.0 ; 26.5 ± 1.5 ; 31.9 ± 1.0 . At a given temperature, intensity remains unvaried for many hours; however, there is a limit temperature for each substance, beyond which intensity decreases according to an exponential law. The existence of a chemiluminescence signifies that the reaction zone contains excited particles. In all of the chemical systems investigated by the authors, only recombination reactions of radicals bring about an excitation. The following dependence on time and temperature applies for the intensity of luminescence: $I \sim e^{-E/RT} e^{-kt}$. Most of the reactions investigated here agreed well with this law. The temperature coefficients A determined by the authors are in agreement with the activation energies of the

Card 2/3

Chemiluminescence in Reactions of Thermal
Decomposition

SOV/20-125-1-28/67

decomposition of the corresponding substances. Chemiluminescence reactions may widely occur even in simple reactions. The authors probably observed the luminescence of primary excited particles. There are 3 figures, 1 table, and 6 references, 2 of which are Soviet.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics of the Academy of Sciences, USSR)

PRESENTED: October 29, 1958, by V. N. Kondrat'yev, Academician

SUBMITTED: September 20, 1958.

Card 3/3

ENTELIS, S.G.; SHLYAPINTOKH, V.Ya.; KARPUKHIN, O.N.; NESTEROV, O.V.

Chemiluminescence in the reaction involving the formation of nylon when the process is carried out in solution and at the phase boundary. Vysokom. soed. 2 no. 3:463 Mr '60.

(MIRA 13:11)

(Nylon)

(Luminescence)

S/076/60/034/007/040/042/XX
B004/B068

AUTHORS: Entelis, S. G., Shlyapintokh, V. Ya., Karpukhin, O. N.,
and Nesterov, O. V.

TITLE: Chemiluminescence in Reactions of Acid Chlorides With
Amines and Ketones

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 7,
p..1651

TEXT: It was established by the authors that the acylation of amines
and ketones by organic acid chlorides is accompanied by chemilumines-
cence. Luminescence can be observed with an ФЭУ-29 (FEU-29) photomulti-
plier sensitive to the range from 350 - 610 mμ. The following reactions
of the components dissolved in organic solvents are mentioned:

✓
—

Card 1/3

Chemiluminescence in Reactions of Acid
Chlorides With Amines and Ketones

S/076/60/034/007/040/042/XX
B004/B068

Reaction	Signal*
$C_6H_5NH_2 + C_6H_5COCl$	0 (dissolved in chlorobenzene)
$C_6H_5NH_2 + C_6H_5COCl$	0.55 (dissolved in benzene)
$C_6H_5NH_2 + C_6H_5COCl$	2-5.5 (dissolved in acetone)
$C_6H_5NH_2 + ClOC(CH_2)_4COCl$	6.5 (amine in acetone, chloride in toluene) ✓
$C_6H_5NH_2 + ClOC(CH_2)_4COCl$	7 (amine in benzene, chloride in toluene)
$CH_3COCH_3 + C_6H_5COCl$	0.35 (ketone in acetone, chloride in benzene)
$CH_3COCH_3 + ClOC(CH_2)_4COCl$	0.7 (ketone in acetone, chloride in toluene)
$C_6H_5NH_2 + HCl$	0.01 (dissolved in chlorobenzene)

* The intensity of the signal is expressed in relative units. About $2 \cdot 10^4$ quanta/sec.cm³ of the reaction volume are taken as unit. There is 1 table.

Card 2/3

Chemiluminescence in Reactions of Acid Chlorides With Amines and Ketones S/076/60/034/007/040/042/XX
B004/B068

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki, Moskva
(Academy of Sciences USSR, Institute of Chemical Physics,
Moscow)

SUBMITTED: December 29, 1959

Card 3/3

VASIL'YEV, R.F.; KARPUKHIN, O.N.; SHLYAPINTOKH, V.Ya.

Setup for measuring weak luminous fluxes. Zhur. fiz. khim. 35
no.2:461-462 F '61. (MIRA 16:7)

1. Institut khimicheskoy fiziki AN SSSR, Moskva.
(Photometry) (Luminescence)

L 15475-63 EPR/EMP(j)/EPF(c)/EWT(m)/BIS AFFTC/ASD/APGC Ps-4/Pc-4/
Pr-4 BW/WW/RM/JFW/MN
ACCESSION NR: AP3005455 S/0204/63/003/004/0579/0583

AUTHORS: Karpukhin, O. N.; Rusina, I. F.; Nikiforov, G. A.;
~~Shayapantsev, V. Ya.~~ 81
77

TITLE: Steric hindrance of phenolphthaleins and the possibility of
their utilization in the study of oxidation-inhibiting
processes 11 7

SOURCE: Neftekhimiya, v. 3, no. 4, 1963, 579-583

TOPIC TAGS: tetraisopropylphenolphthalein, phenolphthalein, naphthol,
colorimetry, diphenylpicrylhydrazyl

ABSTRACT: In order to obtain a highly effective anti-oxidation
inhibitor known as tetraisopropylphenolphthalein was synthesized.
Phenolphthalein was taken as the base since it possesses colorimetric
properties in an alkaline media. Two isopropyl groups were introduc-
ed into the phenolphthalein radical to produce an inhibitor which is
close to the activity of alpha-naphthol. The concentration of this
inhibitor can be easily measured colorimetrically through its

Card 1/2

L 15475-63

ACCESSION NR: AP3005455

intensive and stable coloration in an alkaline media. The sensitivity of tetraisopropylphenolphthalein analysis is several times greater than the sensitivity of diphenylpicrylhydrazyl. The kinetics of tetraisopropylphenolphthalein consumption was measured in the oxidation reaction of ethylbenzol initiated with azobisisobutyronitrile. It is suggested that tetraisopropylphenolphthalein should be used in the study of kinetics and mechanism of the oxidation-inhibiting processes for the measurement of the rate of formation of free radicals in the solutions. "The authors express their gratitude to L. G. Bulavin for his advice to use inhibitors for radical reactions which have phthalein bases." The orig. art. has: 3 figures, 1 formula.

ASSOCIATION: Institut khimicheskoy fiziki, AN SSSR (Institute of chemical physics, AN SSSR)

SUBMITTED: 15Jun62

DATE ACQ: 09Jan63

ENCL: 00

SUB CODE: CH, PH

NO. REF SOV: 002

OTHER: 003

Card 2/2

VASIL'YEV, R.F.; VICHUTINSKIY, A.A.; KARPUKHIN, O.N.; SHLYAPINTOKH, V.Ya.

Chemiluminescence in slow chemical reactions. Part 2: Effect of the chemical composition of the system on chemiluminescence intensity. Kin. i kat. 4 no.3:382-387 My-Je '63.
(MIRA 16:7)

1. Institut khimicheskoy fiziki AN SSSR.
(Luminescence) (Chemical reaction, Rate of)

KARPUKHIN, O.N.; SHLYAPINTOKH, V.Ya.; RUSINA, I.F.; ZOLOTOVA, N.V.

Chemiluminescent method for determining the inhibitors of free radical reactions. Zhur.anal.khim. 18 no.8:1021-1025 Ag '63.
(MIRA 16:12)

1. Institute of Chemical Physics, Academy of Sciences, U.S.S.R., Moscow.

L 17723-63

EWP(j)/EPF(c)/EWT(m)/BD: Pc-4/Pr-4 RM/WW/JFW

ACCESSION NR: AP3004076

S/0076/63/0037/007/1636/1638

AUTHORS: Karpukhin, O. N.; Shlyapintokh, V. Ya.; Zolotova, N. V.; Mozlova, Z. G.;
Rusina, I. F.

TITLE: Mechanism of weakening of the chemiluminescence with inhibitors of
free radical reactions

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 7, 1963, 1636-1638

TOPIC TAGS: chemiluminescence, free radical, inhibitor, ethylbenzene, cumole,
dimethyloctane, azobisisotutyronitrile

ABSTRACT: Chemiluminescence in radical reactions takes place during the recombination of free radicals. It can be expected that the addition of strong inhibitors will weaken the chemiluminescence in the visible region by means of their interaction with the free radicals and thus decreasing the concentration of radicals. The effect of inhibitors upon the chemiluminescence was studied in the reactions of initial oxidation of hydrocarbons such as ethylbenzene, cumole, 2,7-dimethyloctane and others. Azobisisotutyronitrile was used as the inhibitor. It was found that in reactions of initial oxidation of hydrocarbons the intensity of chemiluminescence was lowered by the introduction of various inhibitors. The main reason for the decrease in luminescence is the decrease of concentration of

Card 1/2

L 17723-63

ACCESSION NR: AP3004076

active free radicals in the presence of inhibitors. Orig art. has: 2 figures and 4 formulas.

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of Sciences SSSR, Institute of Chemical Physics)

SUBMITTED: 29Oct62

DATE ACQ: 15Aug63

ENCL: 00

SUB CODE: CH

NO REF SOV: 005

OTHER: 001

Card 2/2

KARPUKHIN, O.N.; SHLYAPINTOKH, V.Ya.; ZOLOTOVA, N.V.

Chemiluminescence in the reactions of inhibited oxidation and the activity of inhibitors. Report No.1: Theory of chemiluminescent methods for determining the activity of inhibitors. Izv. AN SSSR Ser.khim. no.10:1718-1721 0 '63.

Chemiluminescence in the reactions of inhibited oxidation and the activity of inhibitors. Report No.2: Measurement of the activity of inhibitors by the chemiluminescent methods. 1722-1727
(MIRA 17:3)

1. Institut khimicheskoy fiziki AN SSSR.

SHLYAPINTOKH, V.Ya.; POSTNIKOV, L.M.; KARPUKHIN, O.N.; VERETIL'NYY, A.Ya.

Chemiluminescence during alternating current electrolysis. Zhur.fiz.
khim. 37 no.10:2374-2375 O '63. (MIRA 17:2)

L 34143-65 EWT(1)/EWT(m)/EWS(m)/T IJB(c) RM/GS
 ACCESSION NR AT5006090 S/0000/64/000/000/0137/0145

AUTHOR: Vasil'yev, R.F.; Vichutinskiy, A.A.; Zakharov, I. V.; Karpudhin, G. N.;
 Postnikov, L. M.; Shlyapintokh, V. Ya.

TITLE: Chemiluminescence in the study of the kinetics and mechanism of chemical
 reactions of organic compounds

SOURCE: Soveshchaniya po fizicheskim metodam issledovaniya organicheskikh soye-
 dineniy i khimicheskikh protsessaov. Frunze, 1962, Trudy. Frunze, Izd-vo Ilim,
 1964, 137-145

TOPIC TAGS: reaction kinetics, organic mechanism, chemiluminescence, radical re-
 combination, luminescence spectrum, hydrocarbon oxidation, hydroperoxide decompo-
 sition

ABSTRACT: The article deals with the chemiluminescence, produced by recombination
 in radical reactions. Measurement of the intensity of chemiluminescence at var-
 ious temperatures provides a rapid method for determining the initiation rate or
 the activation energy of decomposition of the initiator of the reaction. The tem-
 perature dependence of the intensity of chemiluminescence in the course of oxida-
 tion of various hydrocarbons initiated by different hydroperoxides is discussed,

Card 1/2

L 34143-65

ACCESSION NR: AT5006090

and the kinetics of catalyzed oxidation and hydroperoxide decomposition is considered on the basis of data in the literature. It is noted that the activation of chemiluminescence by additions of luminescing substances shifts the limits of applicability of chemiluminescence methods toward lower temperatures and reagent concentrations (i.e., low reaction rates and low intensities of luminescence). Chemiluminescence is therefore a convenient method of studying the kinetics of certain chemical reactions. (Orig. art. has: 5 figures, 4 formulas and 2 tables.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Chemical physics institute, AN SSSR)

SUBMITTED: 19Jun64

ENCL: 00

SUB CODE: 00

NO REF SOV: 018

OTHER: 002

Card 2/2

L 27259-65 EWT(m)/EPF(c)/EMP(j)/T Pc-4/Pr-1 RPL BW/KW/JFM/JMD/RM

ACCESSION NR: AP4011449

S/0076/64/038/001/0156/0160

AUTHOR: Karpukhin, O. N. (Moscow); Shlyapintokh, V. Ya. (Moscow);
Mikhaylov, I. D. (Moscow)

TITLE: Chemiluminescence and the rate of the elementary reaction in the
co-oxidation of cumene and ethylbenzene.

SOURCE: Zhurnal fiz. khim. v. 38, no. 1, 1964, 156-160

TOPIC TAGS: chemiluminescence, oxidation kinetics, cumene oxidation
kinetics, ethylbenzene oxidation kinetics, peroxide radical recombination

ABSTRACT: The dependence of the chemiluminescence intensity upon the
mixture composition in the azobisisobutyronitrile-initiated co-oxidation of
cumene and ethylbenzene was investigated. The system contains two kinds of
active radicals whose recombination excites chemiluminescence. The relative
contribution of each radical is shown in Figure 1, the change in intensity in
relation to composition in Figure 2. Chemiluminescence intensity quantitative-

Card 1/43

L 27269-65

ACCESSION NR: AP4011449

2

ly characterized the relative reaction rates of recombination of the cumene and ethylbenzene radicals. Orig. art. has: 3 figures and 4 equations.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 25Apr63

ENCL: 02

SUB CODE: GC,OP NO REF SOV: 010

OTHER: 001

Card 2/4

27269-65

ACCESSION NR: AP4011449

ENCLOSURE: 01

0

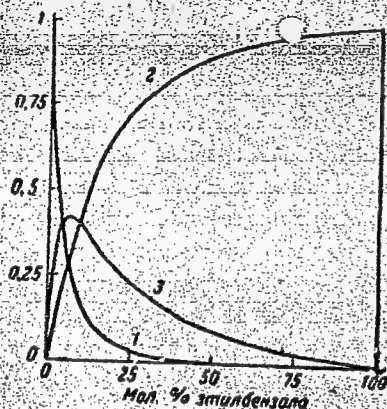


Figure 1. Relative contribution of the individual recombination reactions of the peroxide radicals to the total recombination rate in mixtures of cumene and ethylbenzene, depending on composition of the mixture at 60°C. 1. recombination rate of cumene peroxide radicals. 2. recombination rate of ethylbenzene peroxide radicals. 3. recombination rate of cumene and ethylbenzene peroxide radicals

KARPUKHIN, O.N.; SHLYAPINTOKH, V.Ya.; MIKHAYLOV, I.D. (Moscow)

Chemiluminescence and the rate of elementary reactions in the
cooxidation of cumene and ethylbenzene. Zhur. fiz. khim. 38
no.1:156-160 Ja'64. (MIRA 17:2)

1. Institut khimicheskoy fiziki AN SSSR.

L 27189-65 ENT(m)/EPF(c)/EPR/EMP(j) Pc-l/Pr-l/Ps-l RFL EW/MJ/JW/JFW/HA

ACCESSION NR: AP5006075

S/0204/65/005/001/0049/0052

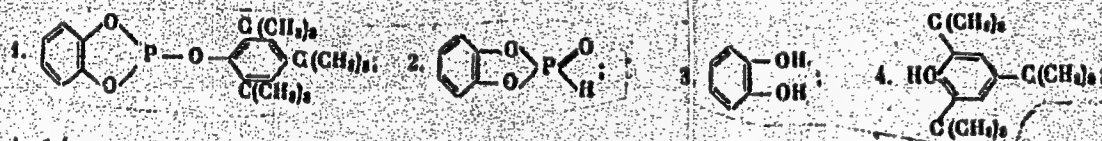
AUTHOR: Khloplyankina, M. S.; Karpukhin, O. N.; Buchachenko, A. L.; Levin, P. I.

TITLE: Mechanism of inhibition by phosphites

SOURCE: Neftekhimiya, v. 5, no. 1, 1965, 49-52

TOPIC TAGS: oxidation, inhibition, inhibitor, hydrocarbon oxidation, polymer oxidation, peroxide, phosphite, chemiluminescence

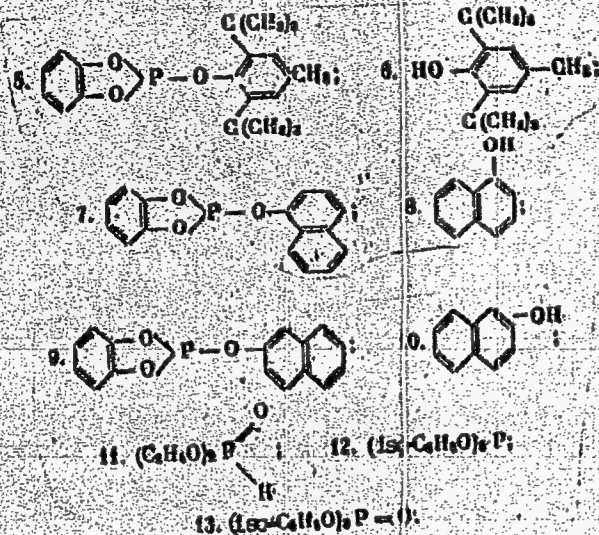
ABSTRACT: A study has been made of the mechanism of the inhibition by phosphites of hydrocarbon and polymer oxidation, as exemplified by the reaction of phosphites with peroxide radicals. A chemiluminescent method, described in an earlier study, of investigating oxidation reactions was used for the reaction at 600C in the presence of azobisisobutyronitrile of ethylphenyl peroxide radicals with the following phosphites, phosphates, or phenols:



Card 1/3

L 27189-65

ACCESSION NR: AP5006075



Card 2/3

1. 27189-65

ACCESSION NR: AP5006075

2

It was found that of the phosphites studied, only aryl phosphites react rapidly; the alkyl phosphites and phosphates hardly reacted at all. Analysis of the data suggested that at 60C, phosphites do not react with peroxide radicals; chemiluminescence quenching by aryl phosphites was attributed to peroxide-radical reaction with partial hydrolysis products of the phosphites. The rate of constants of the reactions of ethylbenzene peroxide radicals with pyrocatechol, and the number of chains terminated by one pyrocatechol molecule, were determined. The authors express their gratitude to V. Ya. Shlyapintokh for his assistance in the research and discussion of the results. Orig. art. has: 1 figure, 1 table, and 21 formulas.

[SM]

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR)

SUBMITTED: 28Nov63

ENCL: 00

SUB CODE: IC, GC

NO REF SOV: 005

OTHER: 003

ATD PRESS: 3191

Card 3/3

L 35087-65 EWT(1)/EWT(m)/EPF(c)/EWP(j)/EWA(c) Pc-4/Pr-4 IJP(c)/RPL JW/RK
 ACCESSION NR: AP5006703 S/0076/05/039/002/0498/0500

AUTHOR: Karpukhina, G. V.; Mayzus, Z. K.; Karpukhin, O. N.

TITLE: Chemiluminescence study of the interactions of two inhibitors during hydrocarbon oxidation

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 2, 1965, 498-500

TOPIC TAGS: inhibitor interaction, chemiluminescence, oxidation inhibitor, phenol, naphthylamine, hydrocarbon oxidation, ethylbenzene

ABSTRACT: The simultaneous use of several inhibitors for the suppression of oxidation often appears to be significantly more effective than the separate use of any of the inhibitor components. The mechanism of the simultaneous action of two inhibitors is not yet fully clarified. In a recent paper (Dokl. AN SSSR, 152, 120, 1963), the authors studied the consumption kinetics of several pairs of inhibitors, one member of which belonged to the class of amines and the other to the phenols. It was found that the phenol inhibitor was consumed at the same rate as if it were alone, while the amine concentration remained unchanged as long as there was any phenol present. In the present paper, the authors show that the chemiluminescent method can be used for the study of the mechanism by which a mix-

Card 1/2

L 35087-65

ACCESSION NR: AP5006703

ture of inhibitors acts during the oxidation of hydrocarbons. Tests using this method confirmed the intensive interaction between N-phenyl-1-naphthylamine and 2,6-di-tertiary-butylphenol inhibitors during their simultaneous presence in the ethylbenzene oxidation reaction. Orig. art. has: 5 formulas and 2 figures.

ASSOCIATION: Institut khimicheskoy fiziki, Akademiya nauk SSSR (Physical chemistry Institute, Academy of sciences, SSSR)

SUBMITTED: 02Apr64

ENCL: 00

SUB CODE: 00, 00

NO REF SOV: 003

OTHER: 000

Card 2/2

KOZLOV, S.T.; KARPUKHIN, O.N.; KARASEVA, Ye.A.

Pavilion "Science" of the Soviet section of the international exhibition "Chemistry in Industry, Construction and Agriculture."
Priroda 54 no.12:3-5 D '65. (MIRA 18:12)

1. Institut khimicheskoy fiziki AN SSSR, Moskva (for Kozlov, Karpukhin). 2. Vsesoyuznoye ob'yedineniye "Izotop", Moskva (for Karaseva).

KARPUKHIN, P.O.; NABOYKIN, Yu.V.

Relation between the structure and the light fastness of insoluble
azo dyes. Report No. 1. Ukr. khim. zhur. 26 no.6:736-739 '60.
(MIRA 14:1)

1. Khar'kovskiy politekhnicheskii institut im. V.I. Lenina.
(Azo dyes)

111 AND 112 CORDS

PROCESSES AND PROPERTIES PAGE

CA

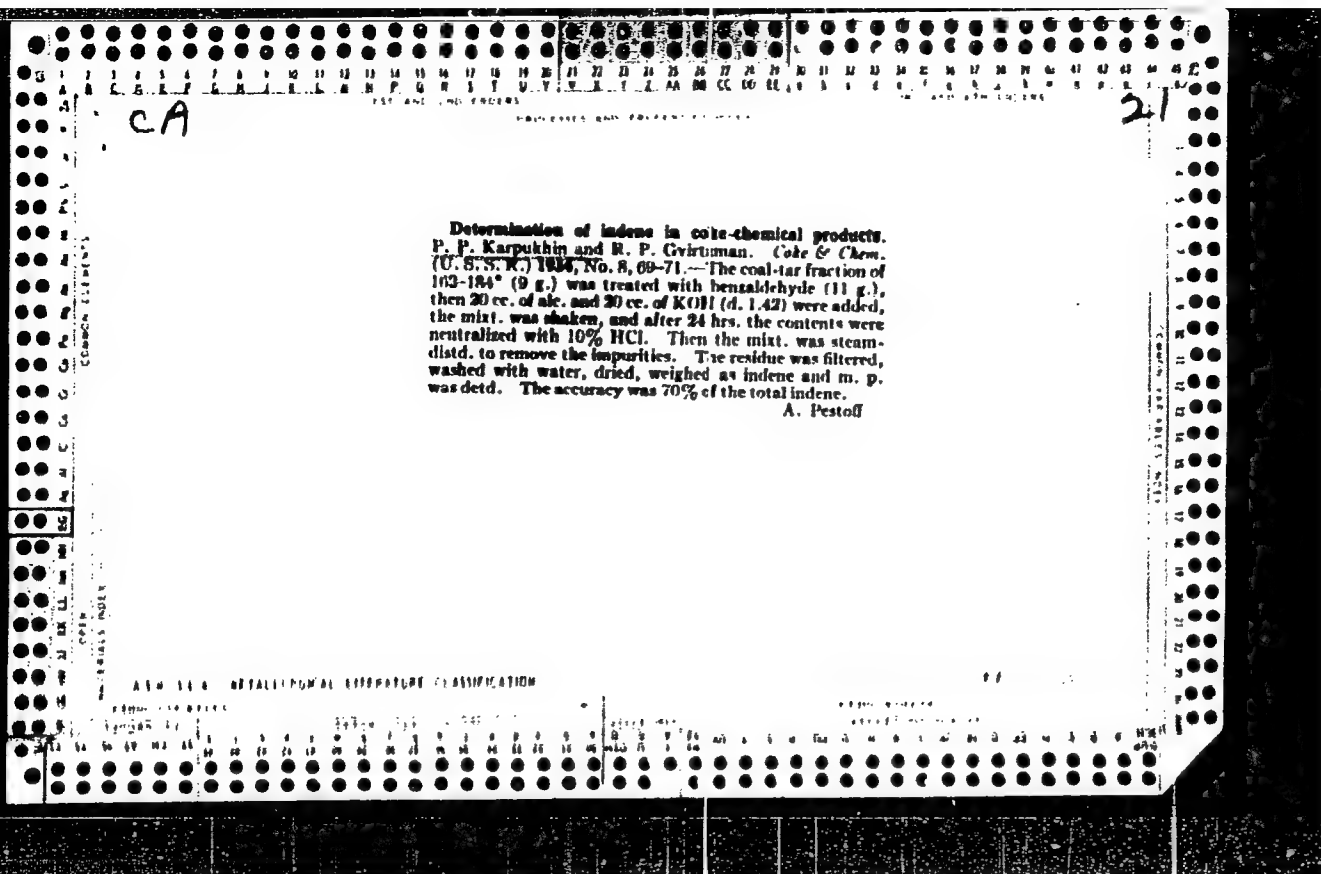
Carbon disulfide in crude benzene. 1. KAPURMAN, (Chem Ind (Russia) 6, 943-4(1929).—When crude benzene is rectified, the lowest boiling fractions contain, besides C_6H_6 , paraffins, etc., most of the CS_2 of the crude product; however, CS_2 is also found, in lesser quantity, in the other fractions. CS_2 cannot be completely sep'd. by repeated distn., as it appears to be in unstable combination with unsat'd hydrocarbons; but fractions contg. 15% CS_2 can be obtained without difficulty, and such fractions can be utilized instead of pure CS_2 for extermination of various insects in rural economy, as expts. show that they are equal in toxicity to pure CS_2 . The crude benzene obtained by distg. coal tar of the Donets region contains 0.27-0.93 CS_2 . B. N.

21

ALG-564 METALLURGICAL LITERATURE CLASSIFICATION

111 AND 112 CORDS

1ST AND 2ND DEGREE										PROCESSES AND PROPERTIES INDEX										1ST AND 2ND DEGREE									
<p>Ca</p> <p>Production of indanthrene colors. P. KARPURIN. <i>J. Chem. Ind. (Moscow)</i> 1951-6(1929).—A review of the chemistry and the present methods of production of indanthrene dyes.</p> <p>CHAB. BLANC</p> <p>25</p>																													
ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION																													
FROM STRONG										FROM STRONG										FROM STRONG									
100000 #										100000 #										100000 #									



1ST AND 2ND ORDERS		PROCESSING AND PROPERTY INDEX	
<p>Preparation of chlorohydroxyhydriene and hydriene glycol from technical indene (obtained) from crude Donets benzene. P. P. Karpukhin, L. V. Duimarskaya and I. Hal'berstadt. <i>Throm. Khim. Zhur.</i> 9, 465-71 (1934) (in Russian).—Contrary to the general information the isomeric compounds contained in heavy C₁₀ and coal-tar light oils consist mostly of indene and but little coumatone. Thus the Kamenok light oil contains 0.03% indene and 0.005% coumatone, while the fraction of the oil b. 103-84° contains 70.2% indene and 2.8% coumatone. Because of the closely related b. ps. and chem. properties, the various methods for the separ. of indene from coumatone are based on chem. reactions. A commercially practicable procedure for the production of technically pure indene from heavy C₁₀ by fractional distn. was used. The fraction b. 175-9° was used in the prepn. of chlorohydroxyhydriene (C₁₀H₇CHOHCHClCH₃) (I) and hydriene glycol (C₁₀H₇CH(OH)CH(OH)CH₃) (II). Two l. of heavy C₁₀ was distd. in a Cu flask fitted with a glass column (40 mm. wide and 400 mm. high) filled with Raschig rings. The fractions, b. 145-65°, 165-75° and 175-9°, were mixed and redistd., giving 242 cc. (12.1%) of indene fraction, contg. 80.3% indene. A yield of 11 g. of I was obtained by stirring 25 g. of indene with HClO₄ soln. (40 g. NaHCO₃ in 400 cc. H₂O treated with Cl₂ at 5° for 1.5 hrs. and filtering I from the oil. II, m. 97-9°, was prepd. in 90% yield by boiling 6 g. I with 20 cc. H₂O contg. a few drops of HCl. Chas. Blane</p>		<p>10</p>	
<p>ASB 554 METALLURGICAL LITERATURE CLASSIFICATION</p>			

COMMON ELEMENTS										COMMON VARIABLE MOI									
NATIONAL MOI										OPEN									
1ST AND 2ND SERIES										3RD AND 4TH SERIES									
PROCESS AND PROPERTIES INDEX																			
B-I-10																			
<p>Materials of the type of "Prodiarite" and "Havag." F. P. KATROVICH (Trans. VI Mendeleev Congr. [1933], 1933, 2, No. 1, 273-277).—An acidproof composition is prepared from sand 80, coal or oil bitumen 15, acid-resisting minerals (clay etc.) 5%, the mixture being heated at 180-200° and moulded. Properties of this and other preps. are described. (Ch. Ass. (p))</p>																			
A.A.A. 11A METALLURGICAL LITERATURE CLASSIFICATION																			
1ST AND 2ND SERIES										3RD AND 4TH SERIES									
1ST AND 2ND SERIES										3RD AND 4TH SERIES									

PROCESSING AND PROPERTIES INDEX																									
1ST AND 2ND COLUMNS													1ST AND 2ND COLUMNS												
<p>BC</p> <p>B-I-2</p> <p>Separation of acenaphthene from coal tar, using the purification. P. P. KARFUCHIN and L. I. SLODIN (Ukrain. Chem. J., 1936, 39, 392-417).—Fractional distillation of heavy oil gives most of the acenaphthene (I) in the fraction of b.p. 280-275°, the yield amounting to 2.50%. A further 0.14% is obtained by redistilling the mother-liquor together with the 275-280° fraction. The first anthracene oil fraction yields 5.84% of (I) (triple distillation), chiefly in the fractions of b.p. 275-270°: < 75% of heavy oil and < 44% of anthracene oil has to be distilled over for complete recovery of (I). Crude (I) is conveniently purified by recrystallization from benzene.</p> <p>R. T.</p>																									
<p>ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>1ST AND 2ND COLUMNS</p>													<p>1ST AND 2ND COLUMNS</p>												

COIN		COUNTRY OF ORIGIN		PROCESS AND PROPERTIES INDEX		100 AMP 1TH INCHES	
SUNDED CO		SUNDED MAP ONE DOZ		SUNDED ONE		SUNDED ONE ONE DOZ	
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104
105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128
129	130	131	132	133	134	135	136
137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152
153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176
177	178	179	180	181	182	183	184
185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200

Utilization of naphthalic acid in the aniline dye industry.
P. P. Karpukhin and K. I. Ratnikova. *Izv. Akad. Nauk SSSR Khim.* 12, 122-35 (in German) (1937). Naphthalic anhydride (I) was sulfonated by heating to 120-30° a mixt. of 20 g. I with 150 g. fuming H₂SO₄ (5% SO₃) for 9 hrs. and neutralizing with Ca(OH)₂. Contrary to Anshin and Zuckmiller (*Ber.* 30, 3083) yields of 85% were obtained. By fusing Na sulfonaphtalate with KOH the HO compd. was prep'd. This was heated at 120-30° with an alc. soln. of NiCl₂ in a sealed tube for 3 hrs. whereby hydrazynaphthalimide (II) was obtained; yield, 85%. Heating II with a soln. of KOH gives perylenetetracarboxylic acid diimide (III) (yield, 60%); it is stable toward light, unstable toward acids, changes its green color to blue at pH 3. Treatment of III with methylating agents gives the black dye; the Bz deriv. is blue-black; nitration of III produces shades from blue to purple. J. G. T.

1ST AND 2ND EDITS																										3RD AND 4TH EDITS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>(A)</p> <p>Preparation of polystyrene from the xylene fraction</p> <p>by J. Karpukhin and L. J. Shchepetilnikova (Sov. Chem. Rev. 1959, No. 4, 33-41). The fraction, b. pt. 140-145°C/1 mm Hg, obtained by rectification of the xylene fraction of coal tar oil and contg. 20% of styrene, is further rectified to yield 30% styrene (yield 8% of the original xylene). This is subjected to polymerization by heating at 150-160°C (24 hrs.). The polymeride is brittle. B. C. P. A.</p>																																																			
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BC

B-I-2

Isolation of pyrene from coal tar, and its purification. R. F. KANGROUX and L. I. BLOMINSKI (Koko i Chimi, 1935, No. 15, 41-44).—Pitch of softening point 64–74° is distilled to yield 1.5% of oil, separated into a fluoranthrene (I) fraction, b.p. 252–269°, and a pyrene (II) fraction, b.p. 272–284°. (I) and (II) crystallize from these fractions, after diluting with ligroin. Crude (II) is recryst. from MeOH, to yield a product of m.p. 115–117°, suitable for prep. of $C_{16}H_{10}(CO_2H)_4$ (yield 0.06% of original pitch).

R. T.

21

ca

Theory of the formation of coal and petroleum. P. P. Karpukhin. *Coal and Chem.* (U. S. S. R.) 9, No. 10:11, 18-22(1969); *Chemie & Industrie* 44, 31(1940). As a first approximation, it can be admitted that coal and petroleum are formed from plant constituents. With coal, it is chiefly the pentosans and lignin which are involved. Species with high pentosan contents (birch, etc.) give rise to vitrain; those with medium pentosan contents (pine, etc.) give fusain. Pressure, temp. and the permeability of the bark also play an important part. Petroleum can have been formed by condensation, polymerization and hydrogenation of the volatile products resulting from the carbonization of wood under pressure. A. P.-C.

COMMON ELEMENTS

OPEN MATERIALS INDEX

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

SECTION ONE

SECTION TWO

SECTION THREE

SECTION FOUR

SECTION FIVE

SECTION SIX

SECTION SEVEN

SECTION EIGHT

SECTION NINE

SECTION TEN

SECTION ELEVEN

SECTION TWELVE

SECTION THIRTEEN

SECTION FOURTEEN

SECTION FIFTEEN

SECTION SIXTEEN

SECTION SEVENTEEN

SECTION EIGHTEEN

SECTION NINETEEN

SECTION TWENTY

SECTION TWENTY-ONE

SECTION TWENTY-TWO

SECTION TWENTY-THREE

SECTION TWENTY-FOUR

SECTION TWENTY-FIVE

SECTION TWENTY-SIX

SECTION TWENTY-SEVEN

SECTION TWENTY-EIGHT

SECTION TWENTY-NINE

SECTION THIRTY

SECTION THIRTY-ONE

SECTION THIRTY-TWO

SECTION THIRTY-THREE

SECTION THIRTY-FOUR

SECTION THIRTY-FIVE

SECTION THIRTY-SIX

SECTION THIRTY-SEVEN

SECTION THIRTY-EIGHT

SECTION THIRTY-NINE

SECTION FORTY

SECTION FORTY-ONE

SECTION FORTY-TWO

SECTION FORTY-THREE

SECTION FORTY-FOUR

SECTION FORTY-FIVE

SECTION FORTY-SIX

SECTION FORTY-SEVEN

SECTION FORTY-EIGHT

SECTION FORTY-NINE

SECTION FIFTY

SECTION FIFTY-ONE

SECTION FIFTY-TWO

SECTION FIFTY-THREE

SECTION FIFTY-FOUR

SECTION FIFTY-FIVE

SECTION FIFTY-SIX

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SECTION FIFTY-EIGHT

SECTION FIFTY-NINE

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SECTION NINETY-TWO

SECTION NINETY-THREE

SECTION NINETY-FOUR

SECTION NINETY-FIVE

SECTION NINETY-SIX

SECTION NINETY-SEVEN

SECTION NINETY-EIGHT

SECTION NINETY-NINE

SECTION HUNDRED

1ST AND 2ND COPIES		PROCESSING AND PROPERTY DATA		3RD AND 4TH COPIES	
<p>Antioxidants from wood tar. V. Fractionation and properties of antioxidants. M. D. Tilicheev. <i>Leningrad. Prom. 3</i>, No. 3, 46-64 (1940); cf. <i>C. A.</i> 36, 7278. The stabilizing action of monohydroxy phenols on cracked gasoline increased with increase in the mol. wt. of the phenol. Of the 3 cresol isomers, <i>p</i>-cresol showed the greatest activity in this respect and <i>m</i>-cresol the least. With the polyhydroxy phenols, the activity was especially high when the OH groups were on neighboring C atoms, as in pyrocatechol and pyrogallol. When the H atom of the OH group was replaced by a Me group, the activity was sharply reduced. Practical tests showed the activity of the wood-tar fraction, b. 200-20°, to be too low. The activity of the fraction b. 240-30° was even lower than that of the standard fraction (b. 200-30°) although it could be increased by widening the fraction to b. 220-330°. The 240-300° fraction was especially useful and indeed showed a higher activity than the standard fraction, which fact was due to a reduction in the action of high temp. and thus to a reduction in the conversion of phenols. The pitch content of this fraction was equal to or less than that of the standard fraction. Fractions high in acids could be rendered useful as antioxidants by washing with water or by the use of a greater quantity of steam in the distn. III. Thermal stability of the resins and the wood-tar antioxidants. M. D. Tilicheev and W. F. Karpuchina. <i>Ibid.</i> No. 5, 14-20. In tests on the thermal stability of the antioxidants for cracked gasoline the birch wood-tar fractions contg. 1.4% tar, 1% water and 8% light oil (d. 1.08) were heated at different temps. for varying periods. The results showed that under improper treatment the antioxidants condensed and coked. After 18.75 hrs. at 283° about 27% of the highest-boiling fraction or pitch was converted. The presence of Fe catalyzed this process. The product of this treatment had a much poorer stabilizing action. The double distn. used in the tech. production of antioxidants therefore should be avoided. The following are given as the highest permissible corresponding values for time and temp.: 1 hr. at 300°, 2 hrs. at 290°, 4 hrs. at 280°, 8 hrs. at 270°. Through <i>Chem. Zentr.</i> 1940, II, 1670; 1941, I, 987. M. G. Moore</p>					
<p>ASB-31A METALLURGICAL LITERATURE CLASSIFICATION</p>					
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PROCESSES AND PROPERTIES INDEX																																																			
<p><i>ca</i> 21</p> <p>Method for determining styrene. P. P. Kirpukhin and R. I. Arenkova. <i>Coke and Chem.</i> (U. S. S. R.) 11, No. 3, 37-8 (1941); <i>Chem. Zvest.</i> 1943, 1, 1080. Dissolve 1 g. of the sample in 70 ml. of PhNO₂ and add 1.34 ml. of Br₂; this is a 25% excess over the quantity to form the tetra-bromo deriv. which is characterized by its fus. Heat the reaction mixt. slowly to 180° during 15-20 min. and keep at this temp. for another 15 min. Cool, filter, wash the crystals with 3-5 ml. of benzene, dry at 120° and weigh. Correct with +0.83% to allow for the soly. of the tetrabromo deriv. The detn. requires 2 hrs. but if considerable chrysene is present, more washing is required. W. T. H.</p>																																																			
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1ST AND 2ND GREENS
PROCESSED AND PROPERTIES INDEX

12

CA

Petroleum as source of raw materials for organic synthesis. P. P. Karpukhin, P. I. Mil'halenko, G. K. Goncharenko, O. A. Tyurenkova, and D. E. Kuritskaya. *Izudy Khar'kov. Khim.-Tekhnol. Inst. im. S. M. Kirova* No. 4, 81-7 (1944) (in Russian).—The distribution of aromatic 4, 81-7 (1944) (in Russian).—The distribution of aromatic compounds in narrow fractions of Perginsk gasoline (th) 163%) was detd. The aromatic compds. are $C_{11}H_8$ 0.598, $PhMe$ 2.189, $C_{11}H_9$, and $PhEt$ 4.825%. By nitration, about 2% $PhMe$ and about 3% $C_{11}H_9$ can be extd. from the corresponding fractions. Attempts to nitrate the unfractionated gasoline were unsuccessful. The heptane and the octane fractions are 9 and 5%, resp. N. Thon

ASH-35A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND PAGES																										3RD AND 4TH PAGES																									
PROCESSING AND PROPERTY NOTES																																																			
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<p>Preparation of Neozone D (antioxidant). P. I. Kar- mukhin, P. I. Mikhailenko, O. A. Lyurenkova, and B. S. Lelakhi. <i>Trudy Khim.-Khim. Tekhnol. Inst. im.</i> <i>S. M. Kovalevskogo</i> 6, 140-1 (1944). Heating of a mixt. of 2, naphthol with aniline and 0.5 mole $KHSO_5$ at 180-200° for 2 hrs. gave a 83% yield. With 0.04 mole H_2SO_4 per mole Neozone, the yield was 90%. Corrosion of the iron app. was 0.5 g./sq. in. hr.</p>																																																			
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ca

Rationalization of the production of hexogen. P. P. Karpukhin and V. N. Chetyrkin. *Trudy Akad. Khim.-Tekhnol. Inst. im. S. M. Kirova* 4, 143-5 (1944).—**Short note.** In current practice, urotropine is treated with a 10-11 fold amt. of HNO_3 of d. 1.52 and poured into 4-5 vols. of H_2O , resulting in a HNO_3 too dil. for recovery. The reaction can, however, be carried out in HNO_3 as concd. as 50-55%, provided the mass is cooled to 0° . At a concn. below 50% HNO_3 , 36.5 g. HNO_3 out of 50 g. taken per 5 g. urotropine remains in the mass; this corresponds to the equation

$$\begin{array}{c} \text{H}_2 \\ \diagup \quad \diagdown \\ \text{N} \quad \text{CH}_2 \quad \text{CH}_2 \quad \text{N} \\ \diagdown \quad \diagup \\ \text{H}_2 \end{array} + 6\text{HNO}_3 \rightarrow \begin{array}{c} \text{H}_2 \\ \diagup \quad \diagdown \\ \text{O}_2\text{NN} \quad \text{NNO}_2 \\ \diagdown \quad \diagup \\ \text{H}_2 \quad \text{NO}_2 \end{array} + \text{N}(\text{CH}_2\text{ONO}_2)_3 + 3\text{H}_2\text{O}$$

At a concn. over 50% HNO_3 , only 27.5 g. HNO_3 remains out of 50 g.; this is due to sapon. of $\text{N}(\text{CH}_2\text{ONO}_2)_3$, and immediate oxidation of the HCHO evolved. The reaction at higher concns. of HNO_3 proceeds according to $\text{C}_6\text{H}_{12}\text{N}_6 + 10\text{HNO}_3 \rightarrow \text{C}_6\text{H}_6\text{N}_6\text{O}_6 + 3\text{CO}_2 + 6\text{HNO}_2 + 3\text{H}_2\text{O} + 10\text{HNO}_3$, i.e., 10 mols. HNO_3 are consumed instead of 6 at a lower concn. of HNO_3 . It is possible to reclaim about 55% of the HNO_3 and up to 80% if the N oxides are also collected.

N. Thon

USSR/Chemistry - Pyrene
Chemistry - Coal Tar

Mar 1948

"The Problem of the Amount of Pyrene and Other High-Boiling Compounds in Coal Tar, Pitch, and Pitch Distillates," P. P. Karpukhin, O. Ya. Tsypkina, 5 pp

"Zhur Prik Khim" Vol XII, No 3

Determined pyrene content by the authors' method. Dissolved about 1 gm of the fraction in nitrobenzole and added 1.3 cc bromine. Heated solution to 150° for 20 minutes. Then calculated quantity of pyrene in the fraction from the weight of tetrabromopyrene formed. Estimated amines by titration with 0.1 N solution of sodium nitrate, and anthracene by

70T24

USSR/Chemistry - Pyrene (Contd)

Mar 1948

Postovskiy's and Khmelevskiy's method. Extracted ourysene by treating the fraction with acetic acid, and recrystallizing the precipitate from ethyl alcohol Submitted 30 Jun 1947.

70T24

KARPUKHIN, P. P.

KARPUKHIN, P. P.

23304 Vydeleniye Fluorantena iz Fraktsii Kamernougol'noy Smoly i Igo Ochistka.
Trudy Khar'k. Khim.-Tekhnol. In-ta in. Kirova, vyp. 7, 1949, c. 149-51.

SO: LETOPLS'NO. 31, 1949

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000720910008

The chemistry of 2,3,6,8-tetra-sulfo acids of carbazole synthesis. P. P. Karpukhin and A. I. Lyubchenko. Trudy Kharkov. Putekha. Inst. Khim. No. 2, 83-84 (1964); Referat. Khim., Khar'k. 1956, No. 836. The chemistry of formation of 2,3,6,8-tetra-sulfo acids of carbazole (I) is studied. H_2SO_4 (52 g.) and 10.7 g. carbazole is heated on a boiling H_2O bath 9 hrs., and to the cooled mixt., contg. 1,3,4-tetra-sulfo acid of carbazole (II) in 98.0% yield, is added 100 g. 60% oleum and mixed 7.6 hrs. at 22-23° yielding 01.5% I. Thus, in II at low temp., in the presence of SO_3 , the sulfo group in position 1 forms an inner salt with the NH group. As a result, in further sulfonation, the fourth sulfo group is oriented to a meta position with respect to the NH. The existence of such a salt explains the fact that the Ba salt of I does not react with N-nitrophenyl diazonium ion in alk. media. When the Ba salt is heated with concd. H_2SO_4 above 110° or heated at 40° with concd. H_2SO_4 , the inner salt is destroyed and the addn. reaction takes place with the formation of the azo dye.

M. Vasilov

KARPUKHIN, P. P.

Math
Oxidizing method of dyeing wool-cellulose blends. P. P. Karpukhin and A. I. Levchenko. *Tekhn. Prem. IT*, No. 1, 84-6 (1987). -- Wool and cellulose blends (I), especially fur, are successfully dyed by impregnating I with aromatic amino or hydroxy compounds and subsequent oxidation. Specifically, dyeing of I, wool (II) and cellulose (III) with nalline black (IV) was studied. By presoaking II in NaOH (3.3 g. per 100 g. II), the amt. of IV used is reduced from 20-3% to 7.5-10.0% calcd. on the wt. of II. For dyeing I black, only 8% II is used if 1% p-phenylenediamine is added, the latter probably speeding up the oxidation of IV. (cf. Green and Johnson, *C. A.* 8, 898). Elizabeth Barabash

KARPUKHIN, P.P.; LEVCHENKO, A.I.

Simultaneous preparation of 9-vinylfluorene and acetate salts of potassium or sodium. Ukr. khim. zhurn. 24 no.4:544-548 '58.

(MIRA 11:10)

1. Khar'kovskiy politekhnicheskii institut im. V.I. Lenina.
(Alkali metal acetates) (Fluorene)

PLAKIDIN, V.L.; YAKOBI, V.A.; POKHILA, S.Ye.; KARPUKHIN, P.P.

Catalytic oxidation of 2,2-dibenzanthronyl by an ozone-oxygen mixture. Kin.i kat. 3 no.2:292-295 Mr-Ap '62. (MIRA 15:11)

1. Rubezhanskiy khimicheskiy kombinat i Khar'kovskiy politekhnicheskii institut.

(Benzantracene) (Oxidation)

KARPUKHIN, P.P.; KOROTENKO, T.A.

Active dyes based on epichlorohydrin. Izv.vys.uch.zav.;
khim.i khim.tekh. 5 no.4:636-641 '62. (MIRA 15:12)

1. Khar'kovskiy politekhnicheskii institut imeni Lenina,
kafedra tekhnologii krasiteley i promezhutochnykh produktov.
(Dyes and dyeing) (Epichlorohydrin)

KARPUKHIN, P.P.; LEVCHENKO, A.I.; DUDKO, Ye.V.

Vinylation of acenaphthene and anthracene by acetylene. Zhur.
prikl. khim. 34 no.5:1117-1121 My '61. (MIRA 16:8)

(Acenaphthene) (Acetylene)
(Vinyl polymers)

YAKOBI, V.A.; PLAKIDIN, V.L.; POKHILA, S.Ye.; KARPUKHIN, P.P.

Catalytic oxidation with an ozone-oxygen mixture. Part 1:
Oxidation of 2,2'-dibenzanthronyl. Zhur.ob.khim. 33 no.10:
3369-3373 0 1963. (MIRA 16:11)

KARPUKHIN, Petr Prokhorovich; KOROTENKO, Tamila Aleksandrovna,
inzh.; CHEKALIN, M.A., doktor khim. nauk, retsenzent;
KOROLEV, A.I., kand. khim. nauk, retsenzent; TSYBA, L.A.,
inzh., red.izd-va; TERESHCHENKO, V.V., tekhn. red.

[Active dyes] Aktivnye krasiteli. Kiev, Gostekhizdat
USSR, 1963. 132 p. (MIRA 17:1)

1. Chlen-korrespondent AN Ukr.SSR (for Karpukhin).

KARPUKHIN, P.P.; NIKITENKO, A.G.

Thiophene recovery from benzene fractions by the sulfonation method
with subsequent hydrolysis. Koks i khim. no.10:36-39 '62.
(MIRA 16:9)

1. Khar'kovskiy politekhnicheskiy institut.
(Thiophene) (Coke industry—By-products)

KARPUKHIN, P.P.; TRESHCHILOVA, A.F.

Preparation of 1-acetoxy-1,1-dicyanoethane. Zhur. prikl.
khim. 36 no.11:2533-2538 N '63. (MIRA 17:1)

1. Khar'kovskiy politekhnicheskij institut imeni V.I. Lenina.

KARPUKHIN, P.P.; NIKITENKO, A.G.

Production of thionaphthene. Koks i khim. no.2:36-39 '64.
(MIRA 17:4)

1. Khar'kovskiy politekhnicheskii institut.

KARPUKHIN, P.P.; LEVCHENKO, O.I.

Production of 2-hydroxycarbazole. Khim. proc. [Ukr.] no.1:
18-20 Ja-Mr'63 (MIRA 17:7)

1. Khar'kovskiy politekhnicheskiy institut.

ACCESSION NR: AT4010619

S/3051/63/000/000/0354/0358

AUTHOR: Yakobi, V. A.; Plakidin, V. L.; Karpukhin, P. P.

TITLE: Catalytic oxidation of aromatic compounds by an ozone-oxygen mixture

SOURCE: Kataliticheskiye reaktsii v zhidkoy faze. Trudy* Vsesoyuznoy konferentsii, Alma-Ata, 1963, 354-358

TOPIC TAGS: catalyst, catalytic oxidation, aromatic hydrocarbon, cobalt, oxygen, ozone, oxidation, cobalt oxidation catalyst

ABSTRACT: The author discusses the influence of the concentration of cobalt ions on the oxidation of 2-methyl-anthraquinone by an ozone-oxygen mixture using cobalt acetate as a catalyst with cobalt concentrations of 0.02, 0.16, and 0.28 gram-atoms/liter, yields of 17.6, 64, and 80%, respectively, of anthraquinone-2-carboxylic acid were obtained. A temperature rise above 85C reduced the yield. An earlier assumption that ozone reacts with the catalyst in the first stage of the process was confirmed. This confirmation permitted a stepwise oxidation of aromatic compounds without affecting the C-C bond of the ring. The catalyst widened the possible use of an ozone-oxygen mixture for the preparation of hydrocarbon derivatives containing oxygen. "V. G. Zhdanova and S. Ye. Pokhila took part in the experimental part of the work." Orig. art. has: 1 figure and 2 tables.

Card 1/2

ACCESSION NR: AT4010619

ASSOCIATION: Rubezhanskiy khimkombinat (Rubezhansk Chemical Combine), Khar'kovskiy
politekhnicheskiy institut (Kharkov Polytechnic Institute)

SUBMITTED: 00

DATE ACQ: 25 Jan 54

ENCL: 00

SUB CODE: GC

NO REF SOV: 011

OTHER: 003

Card 2/2

POSTOYEVA, M.Ye.; URAZOVSKIY, S.S. [deceased]; KARPUKHIN, P.P.

Effect of ultraviolet rays on some properties of polyacrylonitrile
fibers and films. Khim. volok. no.4:66-68 '65. (MIRA 18:8)

1. Khar'kovskiy politekhnicheskii institut.

KOSTIN, N.; KARPUKHIN, S.

Valuable initiative. Den. 1 kred. 19 no.11:40-43 N '61.

(MIRA 14:12)

(Kursk Province--Collective farms--Accounting)

(Kursk Province--Banks and banking)

ZIMIN, P.A., inzhener; VERZHBITSKIY, K.I., inzhener; KARPUKHIN, S.S.,
inzhener.

Equipment for making and mounting brick blocks. Biul.stroitel.tekh. 13
no.5:13-16 My '56. (MLRA 9:8)

1. Nauchno-issledovatel'skiy institut po stroitel'stvu.
(Bricks) (Building blocks)

KARPUKHIN, S.S.

Universal grab for assembling large blocks. [Suggested by S.S. Karpukhin]
Rats. i izobr. predl. v stori. no. 151:24-28 '56. (MLRA 10:3)
(Buildign blocks) (Hoisting machinery)

KARPUKHIN, S.S.

KARPUKHIN, S.S.; ZIMIN, P.A.

An all-purpose grip for the lifting and installation of large
blocks. Mekh.trud.rab. 11 no.8:36-37 Ag '57. (MIRA 10:11)
(Hoisting machinery) (Building blocks)

KARPUKHIN, S.S.

PRIMAKOV, Yu.V., inzh.; KARPUKHIN, S.S., inzh.

Bunched wire reinforcement for prestressed reinforced concrete
components with small-sized tubes. *Buil.stroi.tekh.* 14 no.6:17-19
Je '57. (MIRA 10:11)

1. Nauchno-issledovatel'skiy institut po stroitel'stvu.
(Prestressed concrete)

NOSENKO, N.Ye.; KARPUKHIN, S.S.

Assembling and using the SM-535 stand. Nov. tekhn. i prerd. op.
v stroi. 20 no.10:4-8 0 '58. (MIRA 11:10)

1. Chlen-korrespondent Akademii stroitel'stva i arkhitektury
SSSR (for Nosenko).

(Prestressed concrete)

KARPUKHIN, V., inzhener.

Roasting in the boiling stage. Tekh.mol.23 [i.e.24] no.7:15.J1
'56. (MIRA 9:9)

(Ore dressing) (Sulfides--Metallurgy)

KARPUKHIN, V.

Conveyor belts with flexible rollers. (From foreign journals).
TSvet. met. 29 no.8:93-95 Ag '56. (MLBA 9:10)

(Conveying machinery) (Bearings (Machinery))